



# Energy 2003

Metering – The Eyes and Ears of O&M

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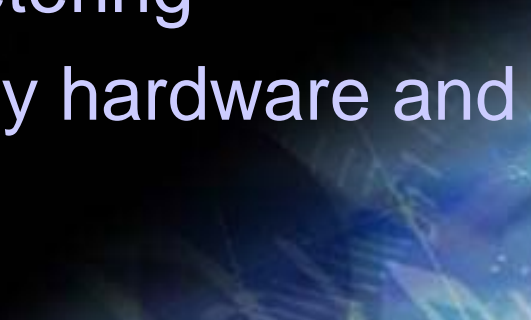


# Our 45 Minutes

The Process of O&M Programs:  
Static

Dynamic

Interactive

- ✓ Value proposition for metering
  - ✓ Some low cost-high utility hardware and software
  - ✓ Case Studies
- 



# MeterSmart

MeterSmart, a subsidiary of Hunt Power, L.P., markets utility grade meters, sub meters, data collection, processing and web-enabled knowledge applications through two operating divisions, E-MON and MeterSmart Services.

- ✓ E-Mon has over 250,000 meters in the field.
- ✓ MeterSmart Services remotely reads 250,000 meters each month



# Federal Experience

- ✓ **LA Air Force Base**
- ✓ **Denver Mint**
- ✓ **Federal Reserve Bank in Philadelphia**
- ✓ **National Zoo**
- ✓ **Museum of National History**
- ✓ **Air & Space Museum**
- ✓ **U.S Postal Services (including Postal Square in D.C.)**
- ✓ **Philadelphia Naval Yard**
- ✓ **White House (Greening of the White House)**
- ✓ **Vice President Residence at the Naval Observatory**
- ✓ **Coast Guard Academy in Connecticut**
- ✓ **Veterans Administration hospital facilities**



# Meters Are The Eyes For The O & M Process

Facility Energy Operations and  
Maintenance is a process, not a  
product:

- ✓ Scheduling
- ✓ Automation
- ✓ Controls
- ✓ Efficiency
- ✓ Generation





# What is Metering?

- ✓ Meters record facts over time
- ✓ Accuracy can vary
- ✓ Information can vary
- ✓ More readings usually mean more accuracy which translates to more cost



# Why Meter ?

- ✓ Increase productivity
- ✓ Reduce building energy consumption
- ✓ Reduce maintenance costs
  - Predictive maintenance
  - Increase high value wrench time
- ✓ Improve knowledge of in-house staff



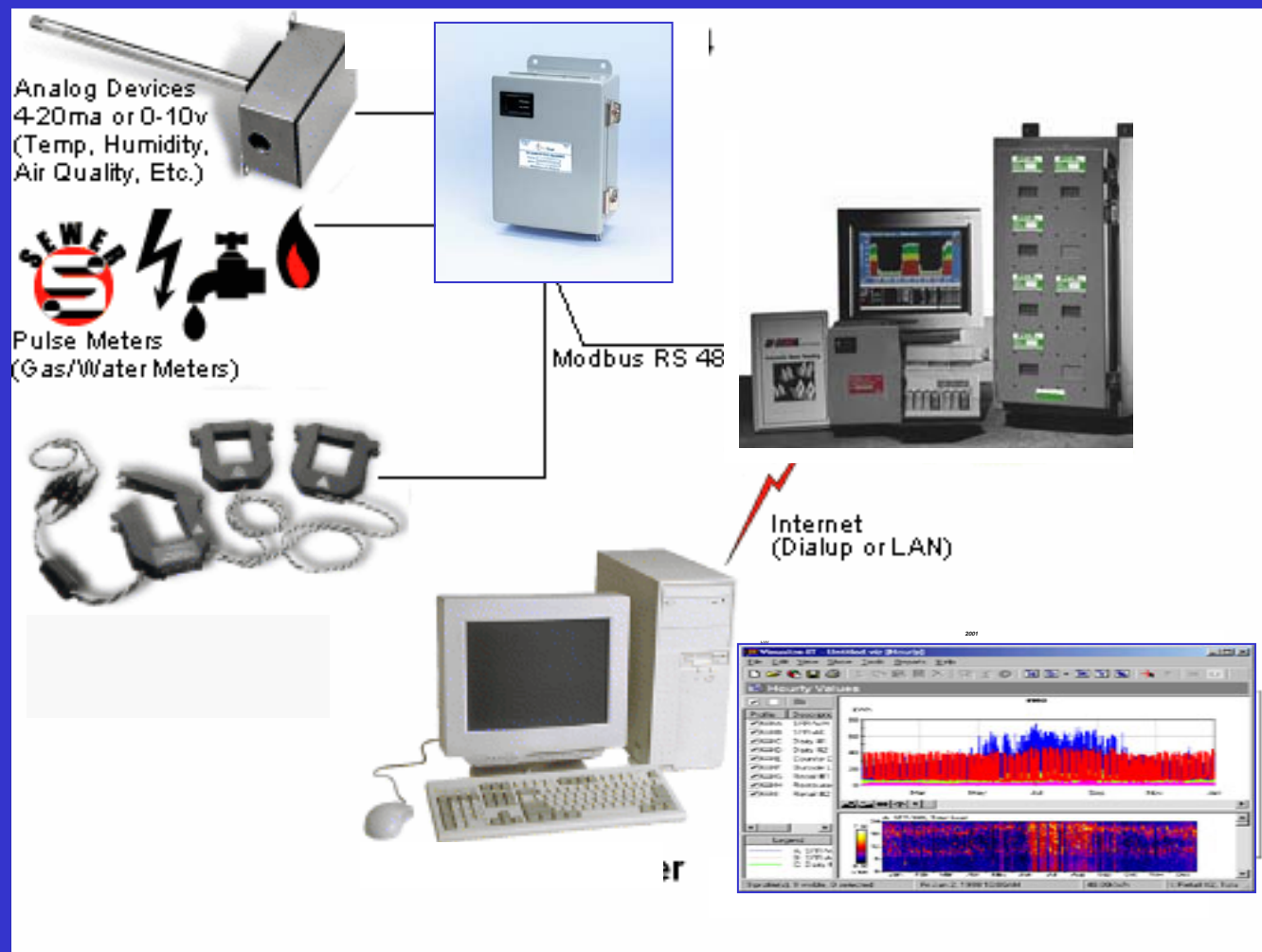
# Start with The DOE and PNNL Conclusions for Metering

- ✓ Technology already exists for diagnostics
- ✓ Controls companies have tools but few diagnosticians
- ✓ Pioneers are needed to assemble tools into a working culture

*(note to industry – this is bleeding edge stuff)*



# Typical Tools





## Some Providers (E-Source , 1999)

**DataPult E-MON**

**Utilipro.com**

**Silicon Energy**

**Master Controls, Inc.**

**Creative Control Design**

**EnerShop**

**Data Freeway**

**Western Bldg Systems**

**Energy Interactive**

**Viron**





# Less Providers (1999-2002)

**Ittron**

**Enerwise**

**MeterSmart (E-MON//UDRI)**

**ABB**

**Western Bldg Systems**

**Viron**



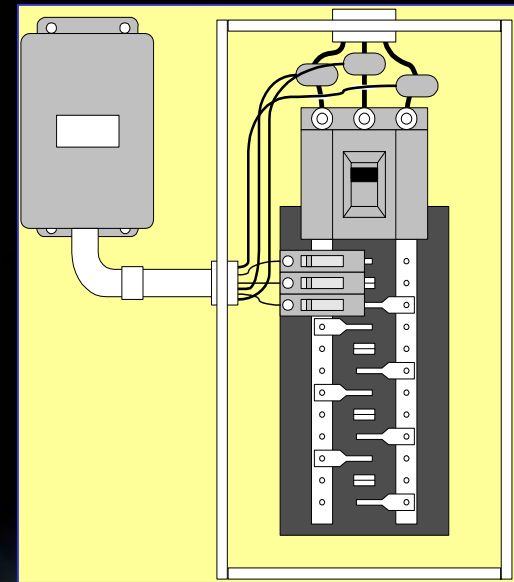


# Simple Is Best

- ✓ A small percentage of your energy budget can fund very effective tools
- ✓ Leverage ESPC M&V tools
- ✓ Recognize the hidden cost of training
- ✓ Have a back-up plan for CHANGE

# Shadow Metering

- ✓ Static : LED and/or Stand Alone Software
- ✓ Dynamic : Remote central station monitoring and web presentment
- ✓ Interactive: LAN or TCP/IP  
Continuous Commissioning  
Real-Time Alarming





# Pro-Mon by E-MON

- ✓ Employs patented split core sensing technology
- ✓ UL Listed
- ✓ Stores 36 days of interval data for two channels
- ✓ MV-90 compatible
- ✓ FEMP approved



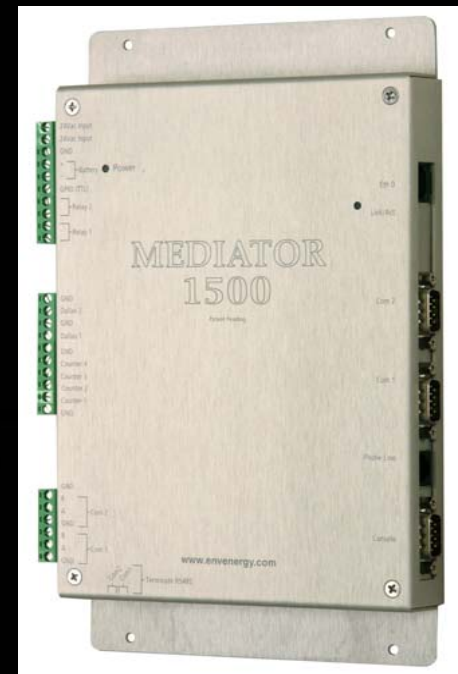
# AcquiSuite by OBVIUS

- ✓ Aggregate energy and operational information
- ✓ Gather "near real time" performance data
- ✓ Benchmark building operations
- ✓ Monitor performance of building systems
- ✓ Alarm data points

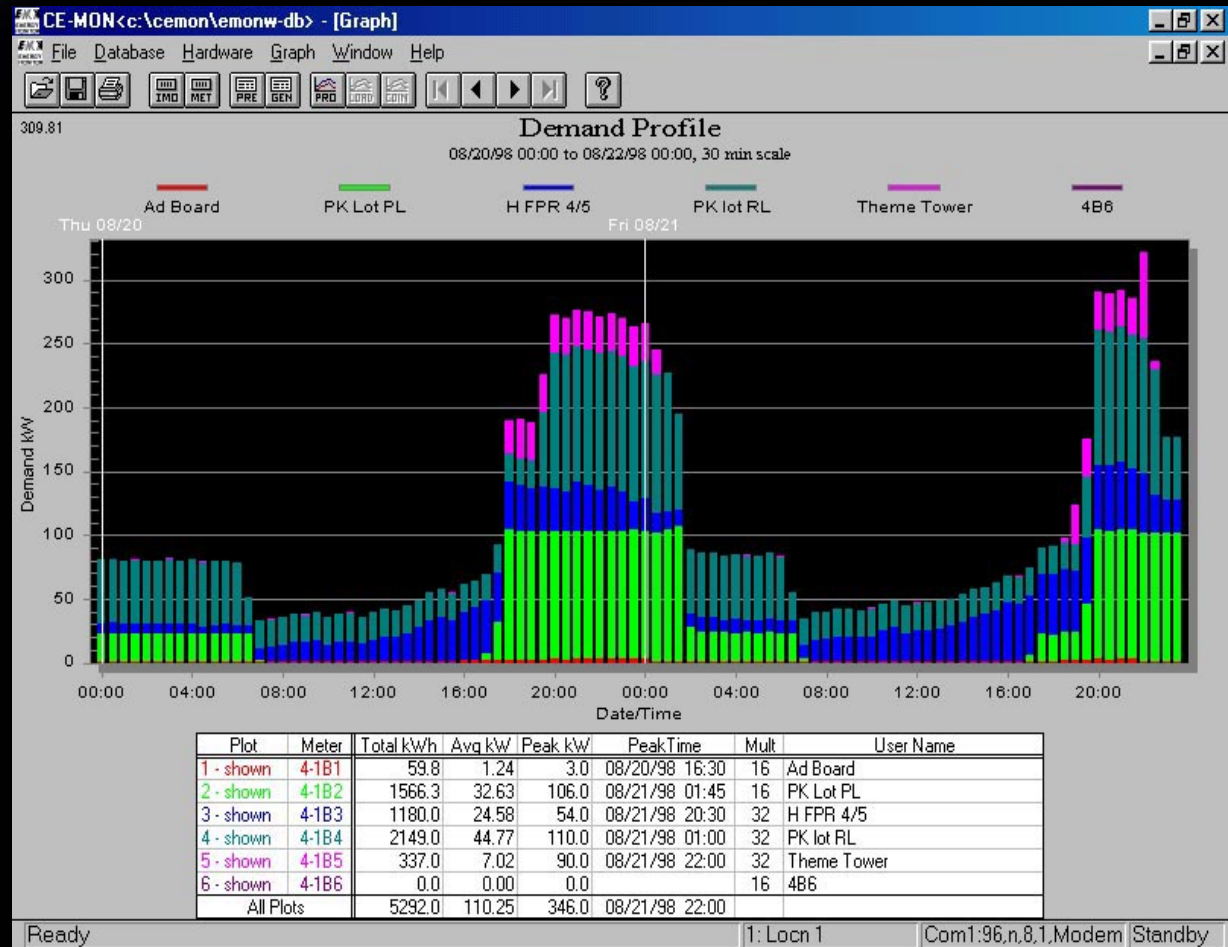


# Mediator by Envenergy

- ✓ Configure network settings
- ✓ Download settings
- ✓ Add or delete devices
- ✓ Upload new configuration
- ✓ Restart the Framework
- ✓ Perform discovery on the network

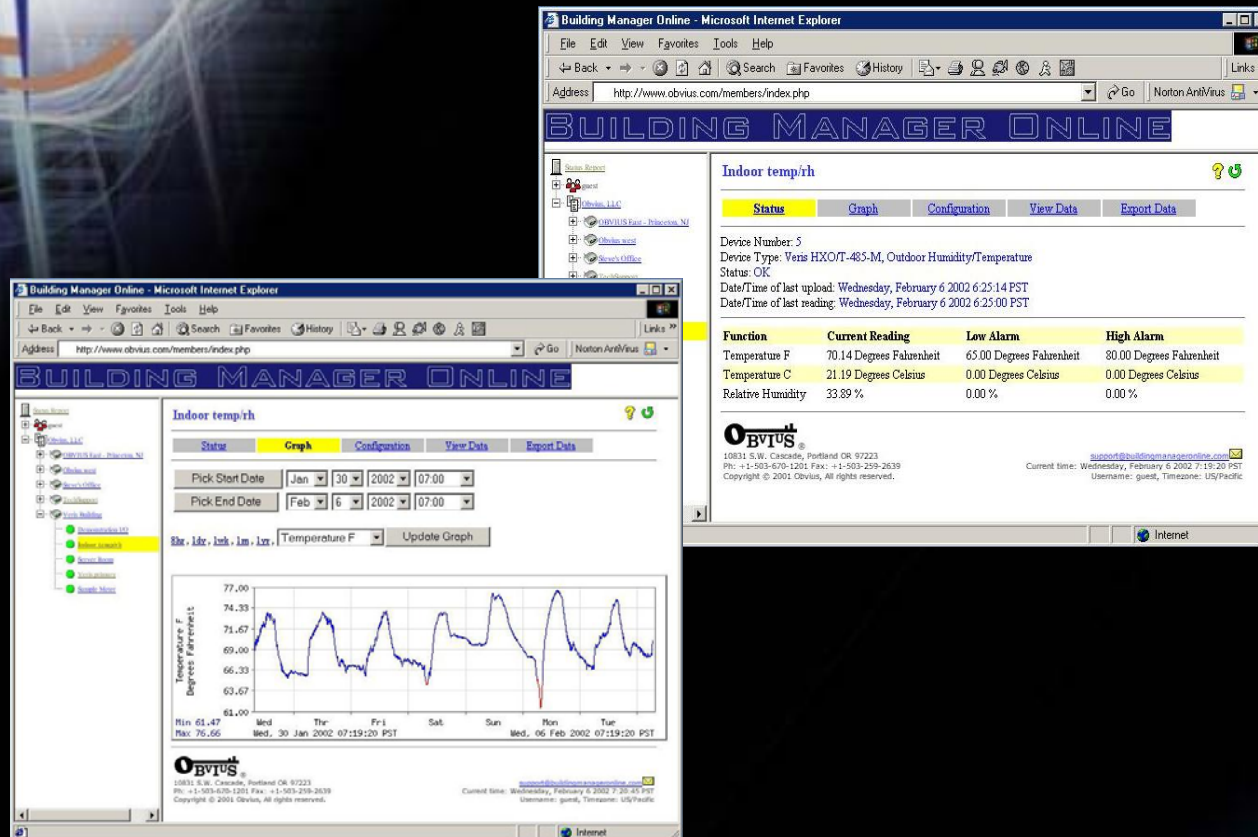


# CE-MON Software





# Building Manager Online

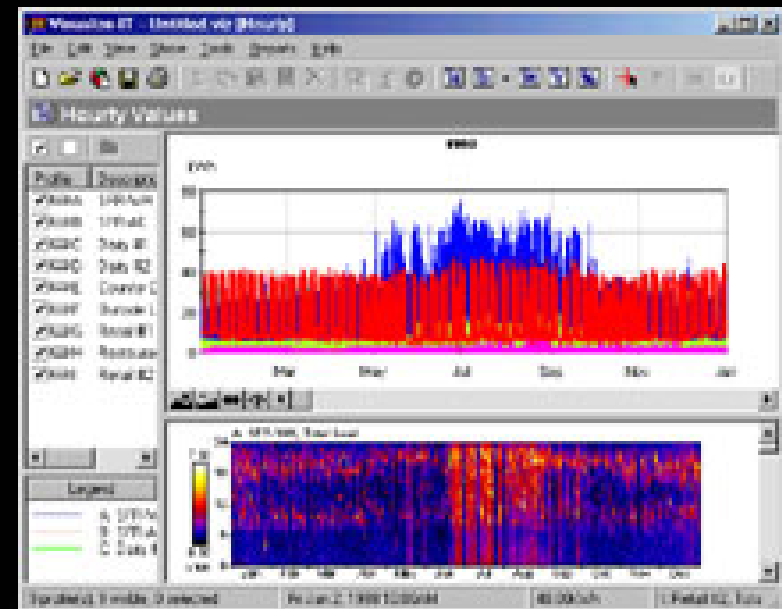


OBVIUS' Graph, Export and Alarm Platform



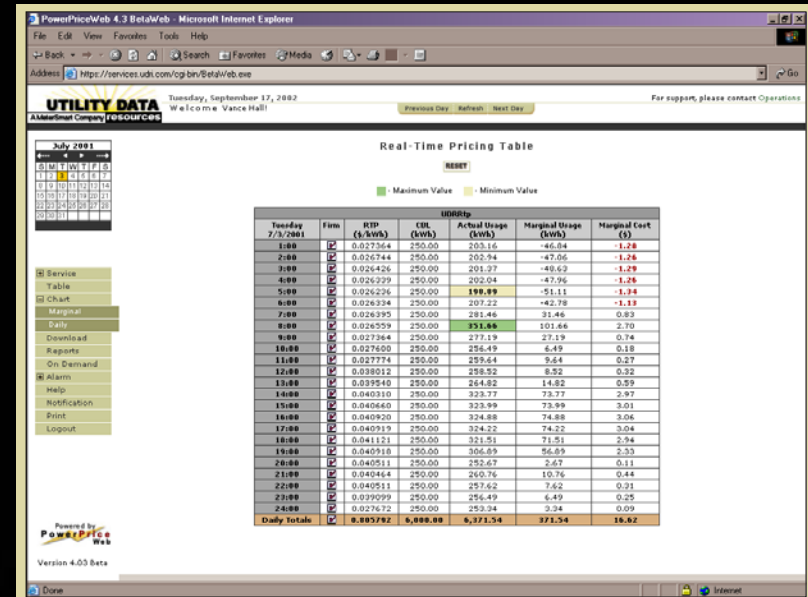
# RLW Analytics - Visualize It

- ✓ Aggregate buildings
- ✓ Rate Analysis
- ✓ Web enabled
- ✓ Perform Demand and Duration Analysis



# MeterSmart Power Alert

- ✓ Whole Building or End Use Baseline
- ✓ Pricing Information
- ✓ Actual vs. Baseline Comparison
- ✓ Traffic Light Analysis
- ✓ Alarms and phone, pager or email notification





# LA Airforce Base

- ✓ Over 50 sub meters identify energy saving opportunities
- ✓ 21 data accumulators verify savings
- ✓ Stand alone software aids Energy Budgeting
- ✓ Summary reports show compliance with energy reduction mandates
- ✓ Estimated cost - \$50,000
- ✓ Resulting energy savings - \$1,000,000



# Washington National Airport

- ✓ \$6.5 Million annual electric bill
- ✓ Over 1 million square feet
- ✓ Over 200 points of measurement including jet gate power, pre-conditioned air, airline offices, restaurants, and retail spaces
- ✓ About \$300,000 to install
- ✓ Annual savings of 25 percent: 10% from tenant billing, 5% from cost allocation, 10% from DSM activity



# Sources For More

- ✓ “Web based Energy Information Systems for Large Commercial Buildings” - <http://buildings.lbl.gov/hpcbs>
- ✓ FEDS 5.0 – <http://www.pnl.gov/FEDS>
- ✓ “Having an Out-Of-Building Experience: Services” – E-Source report EIC-6, July 1999
- ✓ U.S. DOE, Pacific Northwest National Lab - [www.energy2003.ee.doe.gov/](http://www.energy2003.ee.doe.gov/)





## For More Info

Mediator – Envenergy, 805-745-5200

AcquiSuite – OBVIUS, 502-670-1201

Building Manager Online - OBVIUS

PRO-MON– E-Mon, 800-334-3666

CE-MON – E-Mon

Visualize It - RLW Analytics, 517-529-6277

PowerPriceAlert – MeterSmart, 800-520-7773